SOME COMMENTS ON THE EFFECTS OF LONG-RANGE CORRELATIONS IN COVARIANCE MATRICES FOR NUCLEAR DATA*

by

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ABSTRACT

Attention is called to the considerable sensitivity of many uncertainty calculations to the magnitude of the long-ranged correlations which appear in covariance matrices. If such correlations do exist, they must be included in order to properly assess the impact of the uncertainties in the data. If, however, certain assumed long-range correlations are unrealistic, then analyses involving such correlation information are almost certain to produce misleading results. The issue is discussed in general terms, and its importance is illustrated by examples based in part on recent work from this laboratory. Some practical suggestions are offered for dealing with the matter of correlations in instances where the available information is incomplete.

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